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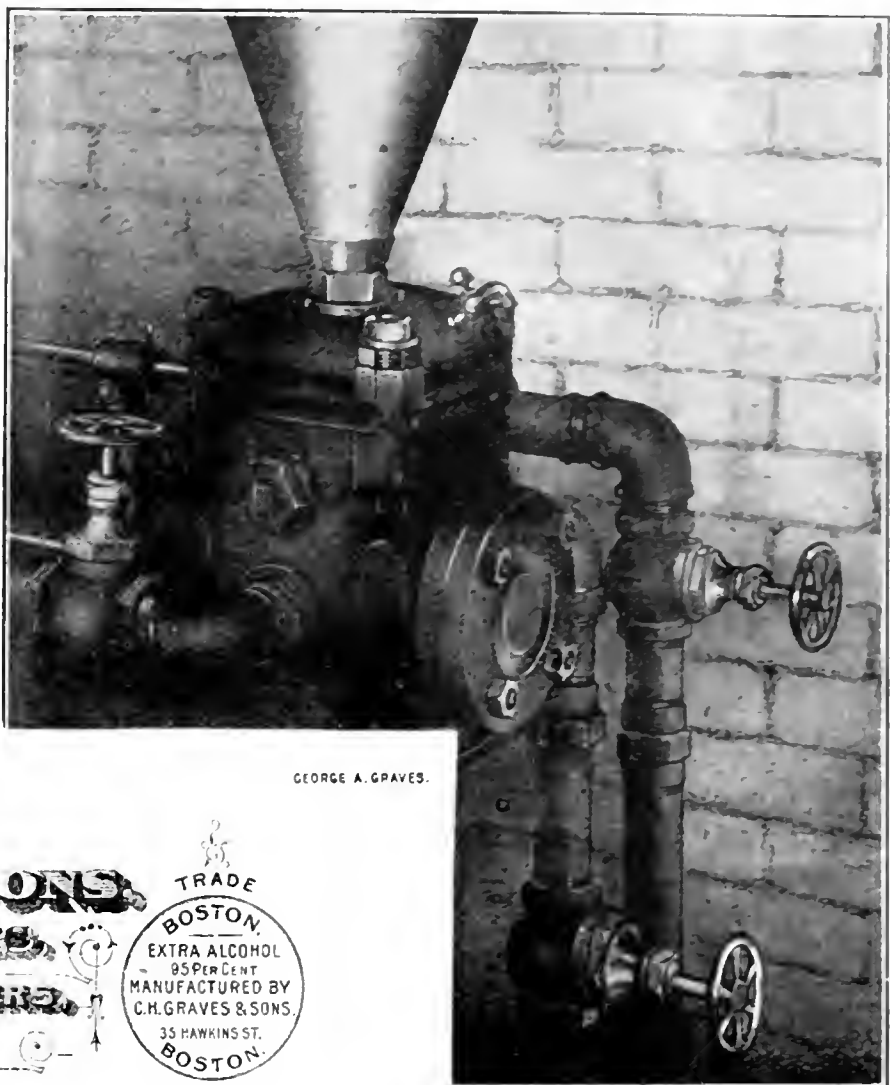
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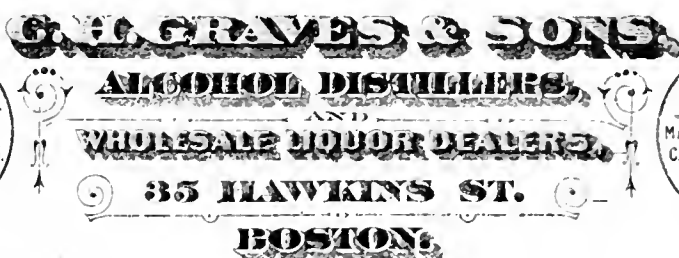
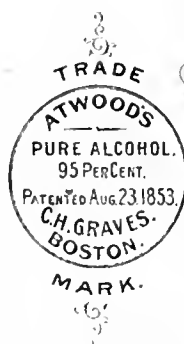
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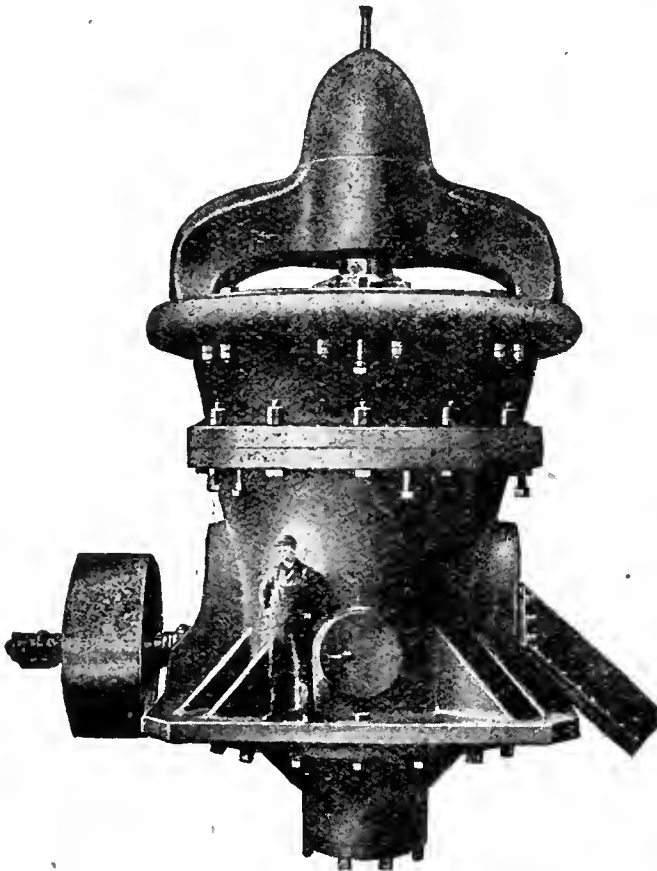
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Notes and News.

The agreement between the mine mechanics and the Chamber of Mines, whereby the standard wages were increased by 3d. per hour for a 48 hours' week, was accepted by the men subject to the increase, which was intended to operate as a war bonus, applying also on a sliding scale to men who are earning more than the standard rate of pay. The increase, which is virtually a war bonus, has been worked out as follows:—(a) Those earning 2s. 6d. per hour will receive 3d. per hour extra, or 1s. 8 6d. additional per day. (b) Those earning from 2s. 6d. to 2s. 9d. per hour will receive 2½d. per hour extra, or 1s. 5 2d. per day additional. (c) Those earning over 2s. 9d., but not more than 3s. 4d. per hour, will receive an extra 2d. or 1s. 1 7d. per day additional. In the case of underground mechanics, who are paid on a slightly higher scale, the new arrangement works out as follows:—(a) Those earning 2s. 9½d. per hour will receive the extra 3d. on a 48 hours' week, or 1s. 8 6d. per day additional. (b) Those earning up to 3s. 0½d. per hour will receive 2½d. extra, or 1s. 5 2d. per day additional. (c) Those earning up to 3s. 4d. will receive the 2d. per hour extra, or 1s. 1 7d. per day additional. This war bonus will not be calculated on the actual number of hours worked, but per day on the 48 hours' week basis. Those who are paid on a monthly basis and who are in receipt of not more than £35 per month will get the bonus at the rate of 2d. per hour.

* * * *

The considerable progress lately made with tin and copper smelting in the Transvaal lends interest to what Australia is doing in a similar direction. At a meeting of the metal exchange in Sydney early last month, Mr. C. E. D. Rogers, the chairman, spoke at some length on matters discussed by a deputation which recently interviewed the Prime Minister. The main points enlarged upon by Mr. Rogers were (1) The local treatment of all ores produced in Australia and the disposal of the metals in Australia. He said that it was the intention of the Government to stop the exportation of tin ore, which up to the present had been shipped in large quantities to the Malay. It is, however, understood that, so far as tin is concerned, this is conditional upon the local smelters agreeing to the regulation of their charges, which is unlikely, seeing that no such stipulation obtains in regard to silver-lead and copper ores. (2) The fixed prices for rare metals. Commenting on this point Mr. Rogers said that the present prices and the agency arrangements were being reviewed and an announcement would shortly be made. The Prime Minister, said Mr. Rogers, had submitted a scheme whereby the Government was prepared to make a contract to take over for a period of ten years the whole of the tungsten production, and that although the offer had expired the Government was still prepared to negotiate with them. Mr. Rogers further stated that efforts had been made to fix a price for copper for three years; evidently the recent negotiations for the formation of a copper producers' association is an outcome of this.

* * * *

At the recent annual meeting of the B.S.A. Co. in London, the Chairman, Sir J. S. Jameson, gave some interesting figures concerning the transport organised by the Administrator of Northern Rhodesia, Mr. L. A. Wallace. It appears that out of a total native population of 875 000 no fewer than 293,000 had been engaged in work for military purposes. In Nyasaland a considerable, though smaller, number was similarly occupied. Points of importance in connection with the increased development of the agricultural resources of the country were the arrangements for providing more cattle and maize for England. Plans had been given out for large irrigation works in connection with

the citrus plantations. Regarding the mineral side, Sir Starr attributed the non-discovery of any large new gold mines to the absence of fresh capital—unkind critics might suggest another explanation—but added that the small workers were doing well. The hopes expressed last year regarding the asbestos industry had been more than realised, over 100,000 pounds having been sold on the London market. The proved area had been largely increased and steps to deal with it were being taken by a well-known financier. In lead and copper long-awaited developments were gradually coming about. Not only had the Rhodesia chrome mines paid dividends totalling 45 per cent. for the past year, but was distributing 20 per cent. on account of the current financial period—besides paying £24,000 as excess profits tax on a capital of £60,000. The railway revenue showed a distinct recovery—but it was necessary to take account of financial requirements after the war for renewals of rolling stock, etc. The company had not yet secured a clear title to the million and odd acres of land not required for native reserves, but a decision was expected before the next long vacation. Referring to the postponement of the proposal for amalgamation of the Northern and Southern territories, the speaker said the directors were of opinion that the step was advisable both for political and economic reasons; but the consent of the people was absolutely necessary, and so far the scheme had not been adequately supported. No one could foresee what changes might be brought about by the war. Rhodesia was in the very centre of the district where re-mapping would take place.

* * * *

In the course of the annual report recently issued by the S.A. National Union, the following

The South African Machinery Market. significant passage occurs:—"Sufficient attention has not been given in this

country to the very active campaign which is being conducted by export firms in Britain with a view to capturing the trade of the Colonies and Dependencies after the war. The principal medium is "*The Times Trades Supplement*," which has established correspondents in South Africa as well as elsewhere over the Empire. The instruction to these writers is to send all information as to what the country needs to import and has previously imported from elsewhere, together with the best methods of concentrating this trade in the hands of oversea firms. Information as to what can be produced locally, or inducements, in the way of raw material or labour, for British firms to establish branches here, is not published. The same idea is being promulgated by means of advertisements and inserts in magazines and by the use of trade circulars through the post, a leaf from the German book. Now Britain, through the conversion of its munition factories into workshops for making everything previously obtained from Germany—or America—from motor-cars to incandescent lamps and safety razors, will be in a peculiarly favourable position to enter upon a policy of dumping. There will be a superabundance of highly adaptable machinery which must be kept running in order to give employment to the labour force released from the war. South Africa, except as regards a few minor agricultural implements and some small mining material, does not produce any machinery of its own. Several promising industries dealing with mealie products, paper, base metal extraction, etc., have been hung up owing to the impossibility of securing freight for the import of machinery. We have the raw material and the labour to enable us to embark on a policy of production on a considerable scale. The one thing which we must import in quantity is the necessary machinery for equipping all those factories, which must come if we are to make any real progress. The entrance of America into the war on the side of the Allies will still further complicate matters, for that country, probably at least as fully equipped with up-to-date machinery as Britain, will be entitled to demand most-favoured-nation treatment after peace. Further, Germany, to revive her shattered industrial position, will have to 'dump.' It is said that there is no patriotism in business. Shall we be able to

withstand the test of cheapness when price again becomes the only determining factor? It is plain that only a bold and immediate policy of equipping South Africa with industrial machinery can prevent us being left in the lurch and swamped with the products of the rest of the world. The only way in which the manufacturer can combat the competition with which he may be faced after the war is to be ready to produce here a good article at a moderate price and in any quantity that may be desired."

* * * *

The following has been officially communicated by the Rooiberg Company to the Press:—

New Lease of Life for Rooiberg. "On the recommendation of its technical advisers, the Board has

entered into an agreement with the owner of the farm Blaauwbank, adjoining the company's property, under which it has acquired the right to purchase the mineral rights of the farm, payment being made partly in cash, but chiefly on the basis of a percentage of the profits earned from ore obtained. The company will immediately start operations on tin-bearing lodes already located." Into the foregoing brief statement, shareholders will be justified in reading the promise of a new lease of life for Rooiberg. Prospecting work has been in progress on Blaauwbank for many years, and several promising occurrences of tin ore have been opened up on the property. A considerable tonnage of ore is actually at grass and in sight, and can be milled for the trouble of transport to Rooiberg. A promising nickel occurrence has also been opened up, and may prove a valuable subsidiary source of profit to the company. It is understood that nothing but the very onerous terms demanded by the owner of the property hitherto stood in the way of its acquisition by the Rooiberg people before, and that the agreement now come to is of a most favourable description. The owner will share in the proceeds of the ore drawn from the property up to the extent of the purchase price agreed upon, the Rooiberg Company thereafter becoming the owners of the mineral rights. Assays from the various ore bodies opened up on Blaauwbank go to show that the property is richer even than Rooiberg, and the extent over which the ore occurrences have been traced points to an even greater degree of continuity of values. It is understood that an energetic development policy has been decided upon by the Rooiberg management. The strike of the occurrence upon which operations will be started is about 500 yards long; and values from end to end vary from 2 per cent. to 14 per cent. tin on workable thicknesses. The object of the company is to develop, as expeditiously as possible, ore for the mill which, together with the good payable ore at grass, should conduce to the immediate realization of profits from this section. Indeed there is reason to believe that the cash portion of the purchase price will be realised almost immediately from the ore at grass. We have been able to ascertain the following details of the terms upon which the transaction has been completed, viz.: £5,000 cash; £2,500 to be paid against registration of the contract, and the balance to be paid eight months from that date together with 20 per cent. of the net profit won from ore from the farm, until a total of £35,000 has been paid; when the mineral rights will be transferred. These terms provide a valuable object-lesson in the principle of "give and take" to owners of mineralized farms and those who seek to do business with them. In another direction, also, fortune seems to be again favouring Rooiberg. It is reported that on the northern section of the old property, below 400 ft. on the incline, good values have been struck in the Union lode. Assays vary from 3 per cent. to 6 per cent. From a glance back over the records of the company, this would seem to be the highest value that has been encountered on the property below a depth of 250 feet. In regard to the nickel occurrences on Blaauwbank, it seems that surface indications show 10 per cent. metal over reasonable widths; and, at depth, the records state that very rich ore was encountered, going over 30 per cent. metal. We have been unable to ascertain whether the company will exploit

this occurrence simultaneously with the tin; but with nickel standing at its present price of £220 to £230 per ton, it should prove a very valuable asset, and a considerable factor in the revived fortunes of Roqiberg.

* * * *

The war has undoubtedly given a very substantial impetus to local production and manufacture, says

The Value of the annual report of the S.A. National Advertisement. Union. The report proceeds:—"It has affected practically every form of industry.

Increased production received its first stimulus from the G.S.W.A. campaign. The manufacturer saw his opportunity then and has profited by it ever since. But, speaking generally, he has been content with the large amount of new business offered, a condition which he sees may last for some time. He is making insufficient effort to capture for the future the trade he has been able to secure by the circumstances of the present. The difficulty of obtaining additional or new machinery is of course one explanation of this, but the most important is a failure to recognise the necessity for advertisement. One would have thought that South African manufacturers would have seized the opportunity of letting everyone know that they are able to turn out their goods in quantity and quality to compete with the oversea product. But they are for the most part silent, many claiming that they 'are so busy there is no need to advertise.' This is a short-sighted policy and one bound to have an effect on locally manufactured goods when the old channels of supply are again opened. The wholesaler says, rightly or wrongly, that if the local manufacturer will 'create the demand' he will take his goods. 'He sells what his customers ask for.' The S.A. manufacturer is not doing enough to bring about this demand, and it is to be feared will suffer accordingly."

* * * *

Silver is selling at a price not quoted since 1892. The reasons for the rise are: first, the

The Price of increased purchasing power of China and Silver. India, both of which produce commodities

that have been in steadily growing demand and for which, according to their custom, they ask silver in exchange; second, the coinage of silver for the use of the armies in Europe, particularly those of Great Britain, France, and Russia. To these now must be added the United States; for it is the purchase of silver by the United States Government that is the proximate cause of the recent rise. San Francisco has become the principal point of export for silver, instead of New York. The Mexican, Canadian, and American production goes that way to the Far East, in order to avoid the submarine menace in the Mediterranean. London still fixes the price of silver, because business there opens five hours earlier than at New York. The improved prospect for the metal should not only benefit Tonopah and Cobalt, the two chief silver-mining districts in northern America, but it should swell the profits of the copper-mining companies, many of which, particularly in Montana, recover silver as a by-product. Another consequence is to help Mexican finance, for the peso is appreciating rapidly. The rise may also put it into the head of the Mexicans to assist and stimulate the mining of silver ore instead of looting. As regards the Rand, the following is a statement of the number of fine ozs. of silver in gold bullion produced each month during the last year:—

	Fine Ounces.	Value.
August, 1916	81,616	£8,831
September	79,692	8,692
October	81,941	8,650
November	82,697	9,280
December	81,159	9,081
January, 1917	82,683	9,365
February	75,003	8,599
March	78,601	9,165
April	78,233	9,478
May	85,538	10,371
June	78,746	10,409
July	78,807	10,040

TOPICS OF THE WEEK.

THE NEW BURDENS ON THE INDUSTRY

ON the questions of hours and pay the representatives of the mining companies seem to have overlooked most of the demands of the men, and an amicable settlement has been effected on the chief points at issue. There is, however, no gainsaying the fact that industrial peace has been purchased at the cost of further burdens on the industry. No one who is not in possession of all the facts and arguments adduced by both sides at the round-table conference is in a position to pronounce judgment on the terms of the settlement. But inasmuch as these terms materially increase the war-burdens on the industry, it is permissible again to emphasise the dangers inherent in this tendency to go on adding to its difficulties. Only the other day Sir George Albu declared that the additional imposts which the industry is bearing as a direct consequence of the war amount, with the further war bonus which it has now agreed to give to white employees, to approximately £3,500,000. With the exception of the profits tax, each of the subsidiary items making up this huge amount, such as the greatly increased cost of stores, miners' phthisis assessments, increased insurance and freight on gold, war bonuses, leave pay, active service allowances, etc., has to be borne just as heavily by the low-grade mine as the richer property. The Chairman of the General Mining Corporation stated: "The poor mine pays at least the same standard of wages and salaries, and often a higher amount for licences to the Government because its mining area consists of claims, whereas in the instance of many of the higher grade properties their areas are held under mynpatch brief. The dwindling profits of the low-grade propositions demonstrate conclusively how sharply they are feeling the pinch, and we are asked by both the Imperial and Union Governments to keep them going to the best of our endeavour. Yet all this time we are exhausting, with an infinitesimal margin of working profit, large tonnages of ore, which in normal times would render an appreciably higher surplus of revenue over expenditure. Under such circumstances there is no doubt that in many instances it would be more in the interests of shareholders to close down the properties for the remainder of the war and until such time as the prices of mining materials, etc., revert to pre-war standards. From the point of view of the community and of the workmen, however, this alternative would be a disastrous one. Do not our men realise that it is essentially in their interests to assist us to keep going as long as possible—not by accepting lower wages; we have never asked for that, but by moderating their requests for increased pay and shorter hours to reasonable limits." That conditions may entail the closing down of some mines, as foreshadowed by the President of the Chamber of Mines, is now seen to be no empty threat, as witness the plight of the East Rand Proprietary Mines. Moreover, as Sir George Albu pointed out, the idea that the men who might become unemployed through the closing down of low-grade mines could be absorbed by the richer mines, is a fallacious one. Even assuming that the richer propositions could take on a certain number of additional men temporarily for excess development, those companies would be unable to increase their milling programme without the installation of new and additional machinery, "which it is impossible to obtain from overseas—and which, were the facilities open, would take probably the best part of a year to manufacture, ship to this country, and subsequently erect." Since this statement was made the men have got their shorter hours and higher pay. It is plainly to their own interest to requite the industry for its generous treatment by increased all-round efficiency and a heartier measure of goodwill. The mines have sacrificed a great deal for the sake of peace. They have risked the reproaches of shareholders, who can very justly complain that their particular interests seem to be postponed to the interests of the State and the general community. It is now "up to" the men who are benefited to indicate by results the wisdom of the attitude of the Chamber of Mines, and to give tangible proof of their recognition of its liberality.

THE AUGUST GOLD OUTPUT IN DETAIL.

The gold output for August amounted to 756,658 ozs., in value £3,214,079, a decrease of 1,181 ozs., or £5,015, compared with July. The labour position shows a further slight decrease. The leading figures are:—

Total output	756,658 ozs.
Value	£3,214,079
Decrease	1,181 ozs.
Value	£5,015
Witwatersrand	731,405 ozs.
Value	£3,106,811
Decrease	443 ozs.
Value	£1,882
Outside districts	25,253 ozs.
Value	£107,268
Decrease	738 ozs.
Value	£3,133
Stamps	9,427
Decrease	6

THE CONTRIBUTING MINES.

	Value.	Increase.	Decrease.
Aurora West	£18,541	£8	—
Bantjes Cons.	22,084	—	£1,134
City and Suburban	47,740	1,096	—
Cons. Main Reef	42,142	331	—
Durban Roodepoort	13,826	—	158
Durban Roodepoort Deep	39,381	1,334	—
E.R.P.M.	147,464	—	4,991
Knight Central	27,793	—	518
Main Reef West	29,518	1,411	—
Meyer and Charlton	36,658	—	4,192
Modder B.	102,035	—	1,270
New Goch	20,219	514	—
New Kleinfontein	80,681	—	6,414
New Modder	120,882	1,810	—
Nourse Mines	55,590	—	909
Roodepoort United	27,126	289	—
Rose Deep	76,935	9,199	—
Van Ryn	45,353	404	—
Village Deep	81,306	—	3,105
West Rand Cons.	33,871	454	—
Wit. Deep	38,127	—	1,806
Wolhuter	40,468	—	2,396
Brakpan Mines	100,871	1,767	—
Cons. Langlaagte	62,212	302	—
Geduld Proprietary	56,126	939	—
Geidenhuis Deep	60,760	—	5,381
Ginsberg	13,894	310	—
Glencairn	14,447	251	—
Government Areas	170,236	5,721	—
Jupiter	27,648	1,096	—
Knights Deep	65,156	735	—
Langlaagte Estate	50,183	451	—
Luipaardsvlei	24,157	841	—
Modder Deep	82,134	773	—
New Heriot	22,755	501	—
New Primrose	15,177	259	—
New Unified	13,550	—	68
Princess Estate	28,897	734	—
Robinson	58,699	—	5,399
Robinson Deep	64,765	4,371	—

MINING EXAMINATIONS.

Study for Certificates as Mine Captains, Mine Managers, Surveyors, Mechanical and Electrical Engineers, and Engine Drivers. Private Tuition and Correspondence Lessons, where personal tuition is impracticable. Practical Mathematics and Electrotechnics. E. J. MOYNIHAN, Consulting Engineer, Cuthbert's Buildings, corner of Eloff and Pritchard Streets, Johannesburg, P.O. Box 2061.

	Value.	Increase.	Decrease.
Simmer and Jack	76,056	3,989	—
Simmer Deep	48,072	—	4,396
Van Ryn Deep	96,126	3,564	—
Village Main Reef	35,260	—	638
Witwatersrand	47,073	—	965
City Deep	130,563	—	3,283
Crown Mines	242,074	3,589	—
Ferreira Deep	69,837	807	—
Randfontein Central	195,888	—	9,808
Springs Mines	68,932	3,198	—
May Consolidated	2,209	969	—
Miscellaneous	15,314	6,932	—

OUTSIDE DISTRICTS.

T.G.M.E.	28,277	—	2,927
Sheba	6,661	—	105
Nigel	16,714	—	1,059
Sub Nigel	22,330	—	1,002
Barretts	1,058	—	246
Glynn's	8,211	1,466	—
Miscellaneous	24,017	740	—

LABOUR FIGURES.

The number of natives employed on the last day of the month by W.N.L.A. and contractors were:—

Gold mines	170,817
Coal mines	11,401
Diamond mines	5,028

Total 187,246

The numbers for the previous month were:—On gold mines, 171,653; on coal mines, 11,381; on diamond mines, 5,223; total, 188,257.

Goerz Group.

Results of operations on the producing mines of this group for the month of August:—

Company	Stamps.	Tons Crushed.	Total Revenue.	Revenue per ton
Geduld Proprietary	80	36,500	£56,830	31/ 2
Modder. Deep Levels	70	42,200	81,919	38/10
Princess Estate	60	22,700	28,970	25/ 6
Totals	210	101,400	£167,719	—

Company.	Costs.		Profit.	
	Total.	Per Ton.	Total.	Per Ton.
Geduld Proprietary	£37,200	20/ 5	£19,630	10/ 9
Modder. Deep Levels	33,908	16/ 1	48,011	22/ 9
Princess Estate	27,662	24/ 4	1,308	1/ 2
Totals	£98,770	—	£68,949	—

Zaaipplaats Tin.

The results of operations at the Zaaipplaats for the month of August, 1917, are as follows:—Days run, 31; ore milled, 2,584 short tons; residues re-treated, nil; concentrates won, 38 long tons; average value of concentrates, 70 per cent. M.T.; estimated profit for the month, excluding Government taxes on profits, £1,995 12s. 6d.; adjustments in respect of estimated values of previous shipments, nil; profit declared for the month, £1,995 12s. 6d.; capital expenditure, £93 0s. 7d.. Note.—At the month end there were estimated to be 24 long tons of tin on hand in various stages of treatment, which have been taken into account at £240 per ton. During the month 15 tons of ingot tin were disposed of.

THE CHAMBER OF MINES AND THE MEN.

Details of the Latest Agreement Between Employers and Employed.

A SPECIAL delegates'-meeting of the Mine Workers' Union, held last week, accepted the minimum wage offer of the Chamber of Mines, subject to agreement with regard to the interpretation of certain clauses. A summary prepared by the Chamber contains the following:—

"It is to be distinctly understood that the rates of day's pay provided hereunder are minimum rates, below which no person employed on day's pay is to be paid, and that the establishment of these minimum rates shall in no way interfere with those who are already on day's pay, and in receipt of higher rates; or in any way prevent the payment of such higher rates in future. The gold mining companies, members of the Chamber, undertake:

"(1) Not to engage for underground work a man in any capacity, other than as a learner, at a rate of pay less than 12s. 6d. per shift, and not to pay less than this rate to any man who has had six months' experience underground on any mine or mines.

"(2) To pay at least 15s. per shift to any man employed on day's pay who has had 15 months' experience in any underground occupation in any mine or mines.

"(3) Not to employ any man on day's pay in any one of the occupations referred to in Group 1 at a rate of pay less than 20s. per shift who has been employed two years in any one or more of such occupations, or at a rate of pay less than 16s. 8d. per shift who has had 15 months' experience in underground work on any mine or mines, nine months of which have been in one or more of such occupations.

"(4) Not to employ any man on day's pay in any of the occupations referred to in Group 2 at a rate of pay less than 20s. per shift who has been employed two years in the particular occupation in which he is, or is engaged to be, employed, or at a rate of pay less than 16s. 8d. per shift who has been employed 15 months in underground work on any mine or mines, nine months of which have been in the particular occupation in which he is, or is engaged to be, employed.

"The following are the occupations referred to in Clauses (3) and (4) as above: Group 1, machine-men, hammer men, and timber men; Group 2, platelayers and pipemen, truck repairers, pump chargemen, masons, or stonewallers (excluding waste packers), and ropemen.

"(5) That persons employed on day's pay as mechanics, namely, men qualified in any of the trades included in the definition of mechanics in the joint agreement between the representatives of the Chamber of Mines and the mine employes, dated July 26, 1915, who are actually required to practice such trade in any underground occupation, shall be paid not less than 22s. 6d. per shift.

"It should be noticed that in accordance with the scheme outlined above such men as skipmen, trammers, sanitary men, etc., are guaranteed a minimum wage of not less than 15s. a shift after 15 months' underground on any mine or mines.

"The line of demarcation between the various classes of work comprising the different groups is fairly well defined, and although the adoption of this scheme does not necessitate the introduction of a schedule setting forth the pay of each category of occupation, it is possible that such a schedule may eventually come into being, and for that reason it is considered to be most important that the mines adopt a uniform method of naming the various classes of occupation, so as to avoid the confusion which now arises."

On the question of a 45 hours' week bank to bank, the actual terms of the Chamber's offer are: As from January 1, 1918, the underground working week to be 45 hours bank to bank; the length of each shift to be counted from the "first dip down" to the "first skip up," the Saturday shift to be at least one hour shorter than the weekday shift, provided that the short shift shall not necessarily apply to developers and shaft sinkers if mutually arranged to the contrary between the mine management and the individual concerned, such mutual arrangement being, of course, subject in any case to the requirements of the existing law and of mining regulations. These proposed arrangements are subject to certain undertakings, not exceeding six in all, being exempted from the arrangements, and also to the Union undertaking that it will not again raise the question of working hours until at least three months after the declaration of peace.

"In the case of Randfontein, the present 45 hours per week bank to bank would, of course, still remain in force, but the Saturday shift would be shortened and the weekday shift correspondingly lengthened." These terms were also accepted.

With regard to the employment of coloured labour, the Chamber undertakes to maintain the "status quo."

The additional war bonus offered as from September 1 is an extra 10s. per month for each "total dependant"—wives and children only coming under this heading. The offer is that this additional bonus shall be applicable to all employes earning up to and including £30 per month. Between £30 and £32 10s. per month a similar bonus, but at 7s. 6d. per dependant, would be given; and between £32 10s. and £35 per month, 5s. per dependant. It will be observed that the additional bonus, like the present bonus, does not apply to single men without dependants. The Chamber looks upon the war bonus entirely as a temporary measure to meet special conditions arising through the increase in the cost of living due to the war. On the question of an additional allowance to single men with dependants, the variety of dependancy is so great that the Chamber prefers that each case should be treated on its merits by the mine concerned, as far as possible on similar lines to the above additional scale, it to be open to any individual who considers he has been unfairly treated to bring the matter to the notice of the Chamber for inquiry.—The war bonus was also accepted.

An offer by the Chamber of Mines to run an employment bureau was rejected by a large majority.

Among the points for further discussion is the question of the form of contract, the only outstanding point of importance.

ANSWERS TO CORRESPONDENTS.

"Pretoria X.Z." Better hold now. Details of the amalgamation scheme will be published in a few days.

"Rhodesian" (Salisbury).—All but No. 4 can be locked up with a view to future capital appreciation. No. 4 is doubtful.

"H. W." (Tembuland).—Enquiries are being made, and a reply will appear next week.

"E. L. H."—Both highly speculative; better leave alone for the present at any rate, as nothing is likely to be done till after the war.

"Point" (Durban).—All four are promising Far East Rand properties, the shares of which will doubtless improve in price gradually, provided development continues good.

PERSONAL.

Sir Francis Drummond Chaplin, Administrator of Rhodesia, is on a brief visit to the Rand.

A cable was received yesterday announcing the death in London of Mr. Sydney Farrar. Deceased was a brother of the late Sir George Farrar, and played a large part in the early history of the Rand. His loss will be mourned by a wide circle of old friends in South Africa.

The Sheba.

The following are particulars of the output of the Sheba for the month of August:—Crushed, 6,307 tons, yielding 1,568 ozs.; working costs, £6,840; development, £950; estimated loss, £1,395.

Standing Industrial Councils.

The interim report on joint standing industrial councils, made by the Reconstruction Committee's sub-committee on relations between employers and employed, was issued by the Imperial Government recently. The report recommends that the Government should propose without delay to the various associations of employers and employed the formation of joint standing industrial councils in the several industries where they do not already exist, composed of representatives of employers and employed, regard being paid to the various sections of the industry and the various classes of labour engaged. As regards the guarantees for the restoration of trades union rules and customs, the report says that while this does not mean that all the lessons learnt during the war should be ignored, it does mean that the definite co-operation and acquiescence of both employers and employed must be a condition of any setting aside of these guarantees or undertakings. The report suggests that the following proposals should be laid before the national industrial councils: Firstly, district councils representing trades unions and employers' associations to be created or developed out of the existing machinery; secondly, works committees representing management and workers to be instituted in particular works to act in close co-operation with the district and national machinery. The report suggests a number of questions to be dealt with, including technical training, industrial research, legislation affecting the special industry, security of earning and unemployment, and conditions of employment.

August Company Registrations.

LIST OF COMPANIES, AUGUST, 1917.

Viant, Ltd., 5, Plein Street, Johannesburg; capital £2,000.
 Norsarka, Ltd., Berg Street, Potchefstroom; capital £750.
 Mia and Son, Ltd., Plein Street, Rustenburg; capital £500.
 Ebrahim Nullah, Ltd., 16, Market Street, Zeerust; capital £500.
 Canton Trust, Ltd., 1, Fox Street, Johannesburg; capital £3,000.
 Thienhaus and Watson, Ltd., 415, Consolidated Buildings, Fox Street, Johannesburg; capital £30,000.
 African Madagascar Agencies, Ltd., 20, Cullinan Buildings, Simmonds Street, Johannesburg; capital £750.
 New Club Buildings Co., Ltd., Trust Buildings, corner Fox and Loveday Streets, Johannesburg; capital £37,000.
 The Industrial and Commercial Timber and Supply Co., Ltd., 50, Green's Buildings, Commissioner Street, Johannesburg; capital £1,000.
 The E.B.D. Madagascar Syndicate, Ltd., Lewis and Marks Buildings, 65, President Street, Johannesburg; capital £2,000.
 Transvaal Chinese United Club, 10, Commissioner Street, Johannesburg; capital £7.
 Chan Hom and Son, Ltd., 68, De la Rey Street, Vrededorp; capital £500.
 C. Wharton Hood and Co. (S.A.), Ltd., 2, Southern Life Buildings, corner Main and Harrison Streets, Johannesburg; capital £15,000.
 B. Greenberg and Zacks, Ltd., 156, corner Pim and Becker Streets, Newtown, Johannesburg; capital £12,000.
 Karodia, Ltd., Bierfontein No. 432, P.O. Phokeng, District Rustenburg; capital £1,000.
 The Small Estates, Ltd., 34 and 35, National Mutual Buildings, corner Rissik and Market Streets, Johannesburg; capital £100.
 The Zeederberg Estate Co., Ltd., S.A. Mutual Chambers, Palace Street, Pretoria; capital £10,000.
 Karroo Transport Syndicate, Ltd., 27, Church Square, Lewis and Marks Buildings, Pretoria; capital £1,000.
 Eastern Province Motor Marts, Ltd., corner Rissik and Marshall Streets, Johannesburg; capital £1,000.
 Noriskin Rostovsky Brothers and Co., Ltd., 178, Bree Street, Johannesburg; capital £2,000.
 Tweefontein United Collieries, Ltd., Second Floor, Corner House, Johannesburg; capital £130,500.
 Chisholm Stevenson and Co., Ltd., Main Reef Road, Denver, Johannesburg; capital £25,000.
 Ramdial Singh Co., Ltd., Twenty-third Street, Malay Location, near Johannesburg; capital £1,000.
 Pietersburg Cold Storage, Ltd., Schoeman Street, Pietersburg; capital £5,000.

SPECIAL AND EXTRAORDINARY RESOLUTIONS.

Auto-Grip, Ltd., Johannesburg; dissolution.
 C. O. Thienhaus, Ltd., alteration of articles.
 Torre do Valle and Co., Ltd., reserve capital.
 Afrikander Extension Syndicate, Ltd., destruction of books.
 The Adler Garage, Ltd., Johannesburg; destruction of books.
 The City Estate Co., Ltd., Johannesburg; reduction of capital.
 Rand Chemical Co., Ltd., Johannesburg; alteration of articles.
 Petricide Industries, Ltd., Johannesburg; confirmation of purchase.
 Monks Garage, Ltd., Johannesburg; rescinding previous resolution re liquidation.
 The Standard Motor Works, Ltd., Pretoria; reduction of capital and alteration of articles.

CHANGE OF NAME.

The New Agatha Fruit Box Making and Timber Company, Limited, to New Agatha Timbers, Limited, Johannesburg.

NOTICES OF INCREASE OF CAPITAL.

South African Exports, Ltd., Pretoria; £500 to £750.
 W. C. A. Shepherd, Ltd., Johannesburg; £5,000 to £10,000.
 Emanuel Reynhardt, Ltd., Johannesburg; £3,400 to £10,000.
 Central Engineering Works, Ltd., Johannesburg; £4,000 to £7,500.
 B.W.B. Madagascar Syndicate, Ltd., Johannesburg; £750 to £1,250.
 South African Oil and Fat Industries, Ltd., Johannesburg; £200,000 to £350,000.
 Witwatersrand Co-operative Smelting Works, Ltd., Johannesburg; £73,459 to £74,000.

COMPANIES PLACED IN VOLUNTARY LIQUIDATION.

The General Mining Supplies, Ltd., Johannesburg; capital £525.
 Johannesburg Fresh Meat Supply Co., Ltd., Johannesburg; capital £2,000.
 The Aroma Tea and Coffee Company, Ltd., Johannesburg; capital £3,000.

NOTICES OF CHANGE OF ADDRESS.

Gibsons, Ltd., 124a, Fox Street, Johannesburg.
 Germiston Milling Co., Ltd., 136, Victoria Street, Germiston.
 Pretoria Building Syndicate, Ltd., 39, Bureau Street, Pretoria.
 The United Fruit Growers, Ltd., 47, Pritchard Street, Johannesburg.
 United Oxygen Acetylene Welding and Cutting Co., Ltd., Torwood Road, next to Plantation Office, Parktown, Johannesburg.
 Rand Collection and Estates, Ltd., 58 and 59, Permanent Buildings, Harrison Street, Johannesburg.
 Guildhall Co., Ltd., corner Twickenham Avenue and Greenland Road, Auckland Park, Johannesburg.
 Goldfoot and Co., Ltd., 21, Permanent Buildings, corner Harrison and Commissioner Streets, Johannesburg.
 Drews, Harris and Sheldon, Ltd., c/o Joseph Rigby, St. Agnes Mansions, Plein Street, Johannesburg.
 New Rip Gold Mining Co., Ltd., c/o T. G. Suter, 101/104, Exploration Buildings, Johannesburg.
 Vaal River Salt Works, Ltd., 21, Steytler's Buildings, Loveday Street, Johannesburg.
 Norwood Land and Trading Co., Ltd., 64, Grant Avenue, Norwood, Johannesburg.
 Haenertsburg Gold and Copper, Ltd., 11/17, Trust Buildings, Fox Street, Johannesburg.
 Lourenço Marques Exploration Co., Ltd., 106, Cullinan Buildings, Main Street, Johannesburg.
 Ilex Trading Co., Ltd., 2, Permanent Buildings, corner Commissioner and Harrison Streets, Johannesburg.
 Industrial and Mercantile Trust, Ltd., 3, New Court Buildings, Market Street, Johannesburg.
 The Mocambique Soap and Oil Co., Ltd., 23, Southern Life Buildings, Main Street, Johannesburg.

Companies Struck Off.

Notice is given, in accordance with section one hundred and ninety-six (5) of the Companies Act, 1909 (No. 31 of 1909), that the names of the undermentioned companies have been struck off the Register, and that they shall be dissolved:

Cafés, Limited.
 The British Citizen Movement, Limited.
 Blumberg, Limited.
 Het Volk Drukkers en Uitgevers Maatschappij, Beperkt.
 The Transvaal General Agency, Limited.
 L. C. Smith and Brothers Typewriter, Limited.
 Meat Exporters (South Africa), Limited.
 Arcade Bar, Limited.
 The General Tobaccos Agency, Limited.
 J. Herzberg, Limited.
 The Rodway and Esson Patent Automatic Inflator Company, Limited.
 Zoutpansberg Consolidated Company, Limited.
 Walker Rogers, Limited.
 The Auckland Park Sporting Club, Limited.
 Herbert Wyatt, Limited.
 The Hermit Coffee and Tea Company, Limited.
 The Marico Milling Company, Limited.
 Zoutpansberg Exploitation Syndicate, Limited.
 Lalys Gold Mines, Limited.
 Ottoshoop Proprietary Mines, Limited.
 The Property and Finance Agency, Limited.
 Kaiser and Witten, Limited.
 The South African Whaling, Pearl, and Fishing Syndicate, Limited.
 Orangia Main Reef, Limited.
 The Lingham Timber and Trading Company, Limited.
 South African Golf Ball Company, Limited.
 Boksburg Properties, Limited.
 The Home Coal Extension Syndicate, Limited.
 The Union Pharmacy, Limited.
 The South African Copper Queen Estates, Limited.
 Rand Deep Level Trust, Limited.
 Importing Produce Company, Limited.
 The Ama Drug Company, Limited.
 Zandvliet Orange Free State Diamond Prospecting Syndicate, Limited.
 Elands River Gold Mines, Limited.
 Steyn Estate Extension Developing Syndicate, Limited.
 Gas Engine Fuel Company, Limited.
 The New Bullion Gold Mining Company, Limited.
 Julius Kemp and Company, Limited.
 Manganese Iron and Steel Company, Limited.
 The Nationalist Party Club, Limited.
 The Coffee Creek Syndicate, Limited.

BARFORD & Co., Ltd. (Late Bull & Oehman, Ltd.)

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Correspondence and Discussion.

Comments on Questions Arising in Technical Practice or Suggested by Articles in the Journal—Views, Suggestions and Experiences of Readers

Brakpan Lease Scheme.

To the Editor, *South African Mining Journal*.

Sir,—I feel sure that many of your readers have been interested in the clever explanation that has been given of this scheme on pp. 29 and 30 of your issue of September 8th, but there must be some others who—having already learned how to tell a horse from a cow, and anxious to learn more—would fail to do so and would give the article an undeserved bye. To write a simplified explanation of an abstruse subject is a much more difficult matter than many suppose; indeed, unless there is considerable initial knowledge on the part of the reader, an attempted simplification is only a waste of time. One of the difficulties in the explanation given is the use of the phrase, "share of profit," in two senses. First, the phrase is used in the third line, followed by a formula in one sense, and conspicuously on the diagram appears the expression, "share of profit (by formula)" in another sense. There is a further confusion through placing numbers along the line AB, which do not plot as a straight line but as a curve. Perhaps you will allow me space for a little amplification that will show that the author's explanation is correct? If R represents the recovery, say, in shillings per ton, and C represents the costs in shillings per ton, then $R - C$ is the profit in shillings per ton, and the proportion of $R - C$ to R, expressed either as a ratio or a percentage as convenient, is denoted by x .

$$x = \frac{R - C}{R} \text{ or } Rx = R - C.$$

The portion or percentage share of profit accruing to the lessor is denoted by y and is related to x by means of the formula—

$$y = 50 - \frac{1150}{x}$$

where x and y are both expressed as percentages. The decimal place will require to be shifted suitably when x and y are expressed as fractions. Since the profit is $R - C$, and the lessor's percentage share of profit is y , the lessor's share of profit, L, is

$$\begin{aligned} L &= y(R - C) \\ \text{but } R - C &= Rx \\ \text{so that } L &= Rxy \end{aligned}$$

Since x and y are both fractions or percentages, the product xy is also a fraction or percentage, and, as has just been shown, it is the fraction of the recovery, R, in shillings per

ton that gives the lessor's share (in shillings, not percentage) of profit. The diagram has been plotted, using xy for its

vertical ordinates and $x = \frac{R - C}{R}$ for its base. (The base should obviously be marked off as 10, 20, 30, etc., similarly to the ordinates.) The formula—

$$y = 50 - \frac{1150}{x}$$

by multiplying by x can be written—

$$xy = 50x - 1150.$$

and this is the equation to the line AB.

$$\text{When } x = \frac{1150}{50} = 23; \quad xy = 0 \text{ gives the point A,}$$

$$x = 100 \quad xy = 38.5 \text{ gives the point B,}$$

and the equation represents a straight line between these two points. The numerals 21.3, 27.0, etc., figured alongside

this line are the values of y found either from $y = 50 - \frac{1150}{x}$

$$\text{or from } \frac{xy}{x} = y.$$

The line AB which is denoted on the diagram as "Lessor's share of profit (by formula) %" therefore gives the value of xy for all values of x between 23 per cent. and 100 per cent., and xy is the fraction that has to be taken of R shillings in order to obtain the lessor's share in shillings per ton.

The line denominated "Percentage of Recovery representing Profit" may also require to be explained more fully. It is a line drawn upwards at an angle of 45° , so that for every point on it the ordinate, xy , is always equal to the

base x . Its equation is therefore $xy = x = \frac{R - C}{R}$ (since this

is the definition of x), or $xyR = R - C$, but the left hand side is the percentage xy of R, and the right hand side, $R - C$, is the profit, so that this line is correctly described on the diagram as the "Percentage of Recovery representing Profit."—Yours, etc.,

G. M. CLARK.

Meischke's Buildings.

September 12th, 1917.

Natal Coal Output: A Correction.

On page 28 of the Journal, September 8th, 1917, figures were given which were said to be the Natal coal output for May, 1917, in tons of 2,240 lbs. The figures supplied represented the output for June, 1917, and were in tons of 2,000 lbs.

Priority Certificates for Hardware.

The Capetown Chamber of Commerce has been notified by the Controller of Imports that a cable was recently despatched to the High Commissioner, in which he was asked to make representations to the Ministry of Munitions that the shipment of all goods not actually required for war purposes that were on order or awaiting shipment prior to the establishment of Priority Committees, should be allowed without special recommendation from this end. He was also asked to inquire how the Ministry wished merchants' orders for general hardware treated, and to point out that the prohibition of bolts and nuts for stock purposes was causing a great amount of inconvenience in this country. In telegrams from the High Commissioner, dated July 24

and 26, it is stated: (1) That the Ministry is permitting, so far as possible, goods ordered from South Africa, prior to the establishment of committees, to be exported without priority certificates; (2) that it is not necessary to grant priority certificates for general hardware, and that no permits are needed for hardware made of cast iron; (3) that the steel situation is such that no hardware involving this material can be allowed; and (4) that, with regard to bolts and nuts, whilst every endeavour will be made to provide bolts and nuts, to guard against breakdown or stoppage of vital and essential undertakings, nevertheless the scarcity of these articles is so great that stocks on a normal basis cannot be permitted. To sum up, therefore, no priority certificates are needed for hardware made of cast-iron and no priority certificates can be recommended for hardware made of steel.

M. Maertens, Director of Mines for the Belgian Congo, M. J. L. van Lier, of Johannesburg, and Messrs. Kirland and Adeock, managing director and manager respectively of the S.A. General Electric Co., which supplied the Belvedere power plant, motored through the Pilgrims Rest district to inspect the Belvedere power scheme.

METALLURGICAL PROBLEMS OF THE RAND.—V.

[By H. FOSTER BAIN.]*

SAMPLING.

The cost of this can be overcome if it be considered worth while. It is true that reliance upon lip-samples, as at present, would not be safe, but even now lip-samples taken at intervals of six hours seem woefully inadequate, despite most convincing tabulations and records. The miner makes up his figures by combining stope-samples. The mill-man depends upon lip-samples taken at the mortars. The two do not check and there is the same feud between mine and mill on the Rand as in other districts. Even lip-samples taken in different sets in the same mill do not altogether check and it is only the blessed law of averages that saves the situation. If it be judged of sufficient importance it would not be difficult as a technical matter to take a complete sample ahead of the stamps where at most Rand mills the whole stream of ore is re-united after passing through the ore-house. At the point where the main belt delivers to the movable cross-belt, which in turn delivers to the ore-bins, an automatic sample of any desired size could be diverted and, after being mechanically quartered down, returned to the stamps. Especially in mills where plates have been taken out of old structures there is room that could be used for a sampling-plant, and in any new mill proper space could easily be secured. The methods of mechanical sampling and weighing are so well understood that it is hardly necessary to quote details. At the Washoe mill of the Anaconda company a larger tonnage than that treated by any Rand company is handled and the ore has long been regularly sampled in a plant built by Dr. W. Brunton. At normal prices for metals the gross value of the ore at Anaconda is less than at a considerable number of Rand mines, including such properties as the City Deep and Ferreira Deep. The ore comes to the mill at Anaconda in a condition as regards coarseness, irregular moisture content, and other features not greatly different from the Rand ore as usually delivered. Mechanical sampling is feasible if it be considered worth while. It must be admitted, however, that with the later development of Rand milling, where the pulp travels in a series of impinging circuits with its escape from one to the other controlled by the accuracy of exceptionally good classification, there is some justification for the dictum of Rand metallurgists that it is far less important to know what gets into the mill than what leaves. A reasonably accurate method of sampling the feed may be accepted so that more time and attention may be devoted to greater accuracy in determining the product and the tailing. Whether crushing in cyanide would unduly increase the expense of cyanidation itself, or, with proper safeguards, seriously add to losses from misdirected solutions, I make no attempt to determine. Possibly further study on these points would reveal methods of meeting the situation.

CONCENTRATION.

At various times proposals have been made for supplementary amalgamation by concentration and before the cyanide process attained ascendancy large sums were spent on tables, vanners, and other concentration devices. This has all been given up. The plan breaks down before the simple fact that the gold occurs not only in the pyrite but in the quartz. If therefore all the sulphides in the ore were concentrated successfully there would still be a heavy loss of gold in the uncrushed particles of quartz. When the material is crushed sufficiently fine to release the gold in the quartz it is also released from the pyrite and open to attack by either mercury or cyanide. By a fortunate circumstance the arrangement of dewatering and sizing cones in the tube mill circuit is such that the particles of pyrite are subjected to more crushing and longer treatment than the quartz, so that there is added opportunity for release of the gold. The objections to ordinary wet concentration would apply equally in the case of flotation, and would even be stronger, since the air-bubbles are not known to have any affinity for gold.

At the Falcon mines, where flotation is used, the greatest care is exercised to save the coarse particles of free gold before the pulp goes to the flotation-cells, and this would be necessary on the Rand as well. So far as present knowledge goes there seems little reason to expect that it will prove feasible to use flotation as a supplement to amalgamation alone and so to substitute a simple compact plant for the acres now devoted to cyanidation. If flotation be introduced it seems best to use it as a supplementary process for treating the sand or slime after cyanidation. According to J. E. Thomas, the pyrite, while constituting but a small percentage of the residue, contains from 6 to 10 times as much gold. It is worth investigating whether it would not be possible by flotation to produce a small amount of relatively rich material here, operating with a high concentration ratio. This is all the more possible since in South Africa the sulphur as well as the gold in any such concentrate would probably be of value. It is said that in the Black Reef there are considerable bodies of low-grade pyritic ore. Formerly attempts were made to work them by wet concentration, though with no great profit, according to report. Some work is being done now. It is possible that here also is a field for flotation. In the work of cyanidation as practised on the Rand, among the striking characteristics are (a) the large use made of centrifugal pumps; (b) the perfection of the sizing and classification; (c) the persistent use of decantation; (d) the employment of zinc-shavings for precipitation; (e) the growing use of vacuum-filters for slime-treatment.

TAILING WHEELS.

Tailing wheels are giving place all along the Rand to centrifugal pumps, which are being used for elevating materials from the finest slime up to $\frac{1}{2}$ -inch stuff. The pumps cost less, and while operating charges are higher, they have the great advantage over wheels that changes in plan requiring a higher lift do not necessitate scrapping the whole plant. The wear on impellers and liners is naturally heavy with coarse material, and so far no quite satisfactory system of reinforcement has been devised. At the Geduld hard iron liners last about 26 days. Probably this need will be met in time by building small foundries at the mines and re-casting scrap. This is done with good results in Rhodesia. At the Lonely Reef only one skilled white man is employed on the work, but melts are made twice a week and many shapes, including pump-parts, are cast. The cost is 4 to 5c. per pound and the scrap is used over and over. A similar system of relying on cheap material frequently re-cast has been found applicable at Joplin, Missouri, and in many districts where better material of longer life would be, as on the Rand, unusually expensive. The work of dewatering and classification is conducted on the Rand on a big scale and with excellent results. Cones, especially the delightfully simple and effective diaphragm-cone invented by Caldecott, are much used. These are often supplemented by the sand-table, which was also designed by him and which proves most satisfactory in operation. These features of Rand practice have been so well described that I need merely mention them.

(To be continued.)

The Boschoek Proprietary Co.

The Boschoek Proprietary Company, Limited, in its annual report presented at the ordinary general meeting of the company held in London on the 5th July, 1917, announces that no work has been done during 1916 on the farm Boschoek, Heidelberg, the policy of the Board being to await events in the immediate neighbourhood of the company's property. The authorised capital of the company is £360,000 in shares of £1 each. Only seven shares have been subscribed for and £7 has been written off for arrear calls. The purchase price of the Boschoek Estate is shown in the balance sheet as £300,000 in fully paid up shares, and these shares were duly issued to the vendors. The amount of cash in hand and at the bank is given as £51 3s.

* In the *Mining and Scientific Press*.

THE WEEK IN THE SHAREMARKET.

Promising Opening Not Maintained—Daggas Better.

THE market firmed up on Saturday morning with an improvement in Springs, Government Areas, and Sub Nigels. The Modder stocks were unchanged, though there seems to be somewhat of a leakage in Modder Easts. Rooibergs are holding their own, a somewhat unusual procedure in the small stocks, whose periods of activity are generally short-lived. The call was dull on Monday morning, but prices were not adversely affected except in some of the smaller stocks. Government Areas and Springs Mines were firm, Sub Nigels easier, and Van Ryn Deeps passed without a quotation. Modder East Options are somewhat out of favour. Rooibergs improved. A quotation was made for what formerly was one of the gilded plums of the market—Ferreira Deeps, to wit—for which 14s. was offered, with a seller at 20s., doubtless recalling painful recollections to those who may still hold them at £8 10s. On Tuesday, notwithstanding the amicable settlement between the Chamber of Mines and the Labour Party, the market was by no means cheerful, the only exceptions being Kleinfonteins and Daggafonteins. The options on the latter do not seem to respond. When the parent stock stood at the present price some time ago, the options were from 2s. 6d. to 3s. higher than they are now. Subsequent to writing the above, the same point of view appears to have struck others in the house, and the price advanced to 11s. There was little change on Wednesday morning. Business was fairly active and some of the outside stocks, such as Glynn's Lydenburg went better. The usual favourite counters, however, were somewhat easier, notably Government Areas. There was an active market after the call. Glynn's Lydenburg advanced to 20s., the highest price they have touched for years. Van Ryn Deeps were distinctly weak at 63s. All the Daggafonteins were strong during the afternoon at advanced rates, and the market closed firm. The market was again firm on Thursday with a slight improvement in the favourite. Daggafonteins continued in good demand. The Modder East division were again somewhat neglected. Rooibergs were also easier. Blaauwbosch Diamonds made a re-appearance at 80s. buyers. The following dealings have taken place in unlisted stocks during the past week:—Sales: Monteleos, 37s. 6d. to 34s.; South Van Ryns, 9s.; South African Alkali, 52s. 6d.; Phoenix, 10d.; Sakalavas, 5s. and 4s. Other quotations: Henderson's Estates, 5s. 3d., 5s. 5d.; Henderson's Options, 1s. 3d. buyers; Rietspruits, 4s.—6s.; New Farms, 1s. 9d., 2s.; Invicta, 20s.—22s. 6d.; Compound Diamonds, 2s. 6d. buyers. Government fives have ranged between £102 10s. and £103, with sales at the latter figure.

* * * *

After the call on Thursday, the Daggafontein trio had a run. The parent stock advancing to 27s., the options to 12s. 6d., and the old shares to 15s., but the two former very soon lost 6d. each of their gains. During the day there was also a rally in East Rands carrying them to 6s. 9d. Report has it that a new strike, of a satisfactory nature, has taken place on the Cason section of the property. Zaaiplaats advanced to 7s. The alterations in prices on Friday morning were as under:—Sales: Dagga Mines, 26s. 6d.; Options, 11s. 9d.; East Rands, 7s., 7s. 3d., 7s. 6d. and 7s. 9d.; Geduld Proprietary, 36s., and sellers; Government Areas, 66s. 6d. and 66s. 3d.; Lace Props, 5s. 11d.; Randfontein Deeps, 4s. 6d.; Wit. Deeps, 8s. 6d.; Zaaiplaats, 7s. 8d. and 7s. 9d. buyers. Other quotations:—Crown Mines, buyer, 46s. 3d.; Glynn's Lydenburg, buyer, 20s.; Lydenburg Farms, 7s. 4d.—7s. 6d.; Meyer and Charltons, £5 1s. 3d. buyer; Kleinfonteins, 18s. 9d.—19s.; Randfontein Estates, 14s.—14s. 3d.; Springs, 64s. 6d.—65s.; Van Ryn Deeps, 62s. 6d.—63s.

	Fri. 7th	Sat. 8th	Mon. 10th	Tues. 11th	Wed. 12th	Thurs. 13th
African Farms	7 8*	8 0*	8 0*	7 9*	7 6*	8 0*
Apex Mines	7 2*	7 0*	7 0*	7 0*	7 3*	7 0*
Aurora Wests	—	—	13 0*	13 0*	12 0*	12 0*
Bantjes Consolidated .	2 8*	2 3*	2 3*	2 3*	2 2*	2 3
Brakpan Mines	110 0*	108 0*	—	109 0*	—	108 0*
Breyten Collieries . .	15 0*	12 6*	19 0*	7 0*	—	—
Brick and Potteries . .	5 0*	—	5 0*	—	—	5 0*
Bushveld Tins	0 3*	0 3	0 3*	0 3*	0 3*	—
Cassel Coals	24 0*	21 0*	21 0*	21 0*	21 0*	21 0*
Cinderella Cons. . . .	3 6*	3 6*	3 6*	3 6*	3 3A	3 6*
City and Suburbans . .	21 0	24 3*	21 0*	21 3*	21 6*	—
City Deeps	73 0*	73 0	72 6*	72 6*	73 0	72 6
Cloverfield Mines . . .	—	8 8	8 6*	—	8 6	8 6*
Clydesdale Collieries .	—	11 9*	11 9*	12 0*	11 9*	—
Concrete Construction .	2 6*	2 6*	2 6*	—	3 1*	3 0*
Con. Investments . . .	17 3*	17 0*	17 0*	17 0*	17 0*	17 0*
Con. Langlaagtes . . .	18 0*	18 0*	18 0*	18 0*	18 6A	18 6*
Con. Main Reefs	14 0	14 0	13 9*	13 6*	14 0	13 10*
Con. Mines Selection . .	25 6*	26 0	26 0*	26 0*	25 6*	—
Coronation Collieries .	—	—	30 0*	—	30 0*	30 0*
Crown Diamonds	1 0*	—	—	—	—	—
Crown Mines	—	—	12 0*	11 0*	16 3*	15 9*
Crown Mines Deb. . . .	£98*	£98*	£98*	—	£98*	£98*
Daggafontein Mines . .	24 0*	24 0*	21 0*	25 0	25 0	26 3E
Daggafontein Options .	—	10 0*	10 0*	10 0*	11 0	11 9*
Durban Road	15 0*	15 0*	—	—	15 0*	—
Durban Road, Deep . .	12 3*	12 3*	12 3*	—	12 6A	12 6*
East Rand Coals	2 0*	2 2*	2 0	1 11*	2 0	1 11*
East Rand Deeps	0 11*	0 11*	0 11*	0 11*	0 11*	0 11*
E.R. Minings	—	—	11 0*	—	14 0*	11 6*
East Rand Props. . . .	4 10*	5 0*	4 3*	4 6*	4 6*	4 6*
East Rand Deb.	£63*	£63*	£63*	£63*	£63*	£63*
Eastern Golds	1 0*	1 0*	1 0*	1 0*	1 0*	1 0*
Ferreira Deep	—	—	14 0*	14 6*	—	—
F. Smith Diamonds . . .	3 9*	3 9	3 0*	3 9*	3 9*	3 9*
Geduld Props.	37 6*	37 6*	37 0*	—	36 6*	36 3*
Ginsbergs	—	—	—	6 3*	—	—
Glencairns	1 1*	—	—	—	—	—
Glencoe Collieries . . .	—	8 9*	—	—	—	—
Glynn's Lydenburgs . .	18 0*	—	18 0*	18 6*	19 0*	19 6*
Government Areas . . .	66 3	66 9*	66 9	67 0	66 6	67 0
Jupiters	4 0*	—	3 10*	3 10*	3 10*	3 10*
Klerksdorp Props. . . .	2 6*	—	1 9	—	—	—
Knight Centrals	3 1*	3 0*	3 0	3 0*	2 9*	2 10*
Knights Deeps	15 0*	—	—	—	—	15 0*
Lace Props.	5 4*	5 9	5 5	5 5*	5 6*	5 0
Langlaagte Estate . . .	—	17 0*	—	—	—	—
Leeuwpoot Tins	11 6*	12 0*	12 6*	12 6*	12 0*	12 9*
Luipaardsvlei Est. . . .	4 0*	4 0*	4 0*	4 0*	4 0*	—
Lydenburg Farms	7 0*	7 0*	7 0*	7 0*	7 3*	7 0*
Main Reef Wests	2 7*	3 0	3 0	3 2*	3 2	3 2
Main Reef West Deb. . .	—	£47½*	—	—	—	—
Meyer & Charltons . . .	97 6*	97 6*	98 0*	100 0*	100 0*	100 0*
Middelvlei Est.	1 0*	1 0*	1 0*	—	1 0*	—
Modder B's	155 6*	155 6*	156 0*	156 0*	156 0*	156 0*
Modder Deep	135 9*	135 0*	136 0*	137 0*	137 6*	136 6*
Modder East	19 9	19 9	19 6*	19 6*	19 6	19 6*
Modder Options (3 yrs.)	7 10	7 11	7 9	—	8 0*	7 7*
Modder Options (4 yrs.)	8 10	8 0	7 10*	7 11*	7 10*	7 9*
Natal Navigation Col. . .	19 0*	19 0*	19 0*	19 0*	19 0*	—
National Banks	£12½*	£12½*	£12½*	£12½*	£12½*	£12½*
New Boksburgs	1 6*	1 6*	1 0*	1 6*	1 6*	1 0*
New Eland Diamonds . .	30 0*	29 3*	—	30 0*	30 0*	30 0*
New Era Cons.	9 10	9 10*	9 10*	9 9*	10 0	9 10*
New Geduld Deeps	6 3*	6 3*	6 3*	6 0*	6 0*	6 1*
New Heriots	30 0*	32 6*	33 0*	33 0*	32 6*	34 0*
New Kleinfonteins . . .	18 3	18 0*	18 6*	19 0	18 9*	18 6*
New Modder	£21*	£21*	£21½A	£21 7 6A	£21*	£21*
New Rietfonteins	1 0*	1 0*	1 0*	1 0*	1 0*	1 0*
New Unifeds	8 9*	7 6*	8 0*	—	9 0*	8 0*
Nourso Mines	19 9*	20 0*	20 0*	18 6*	20 0*	19 6*
Premier Pref.	150 0*	—	—	—	—	—
Pretoria Cements	94 6*	94 6*	90 0*	94 6*	94 6*	94 6*
Princess Estates	1 9*	1 9*	1 9*	—	—	—
Rand Collieries	—	—	—	—	—	2 3*
Rand Klips	9 4*	9 5*	9 6*	9 6*	9 6*	9 4
Rand Nucleus	1 3*	1 3*	—	1 3*	1 3*	1 3*
Rand Select. Corp. . . .	80 0*	81 0*	80 0	79 0*	79 0	—
Randfontein Deeps	4 0*	4 6*	4 6*	4 3	4 0*	4 6*
Randfontein Est.	13 9B	13 9	13 9*	13 9*	13 6*	13 6*
Roberts Victors	—	8 6*	8 6*	—	—	—
Rooibergs	10 6*	10 9	11 1	11 0	10 8	10 7
Roodenoor Uniteds . . .	6 9	6 9*	6 9*	6 9*	6 9*	6 9*
Rose Deep	16 0*	16 6*	16 6*	—	17 6*	—
Ryan Nigels	—	—	—	—	2 6*	—
Shebas	1 0*	1 0*	1 0*	1 0*	1 0*	1 0*
Simmer Deeps	2 6	2 6*	2 6*	2 3*	—	—

*Buyers. +Sellers. AOdd lots. BEx London.

	Fri. 7th	Sat. 8th	Mon. 10th	Tues. 11th	Wed. 12th	Thurs 13th
S.A. Breweries	30 0+	30 0+	30 0+	30 0+	30 0+	30 0+
S.A. Lands	4 8	4 8+	4 6*	4 6*	4 6*	4 6*
Springs Mines	63 6	64 3	64 6	64 3	64 0*	64 3*
Sub Nigels	22 6	23 3	22 9*	22 9	22 6*	22 6*
Swaziland Tins	27 0+	27 0+	27 0+	27 0+	27 0+	27 0+
Transvaal Lands . . .	15 0+	15 0+	15 0+	—	14 6+	—
Trans. G.M. Est. . . .	18 6+	16 9*	16 6*	16 6*	17 6	16 6*
Union 5 per cent. . .	£103	£103	£103	£102½*	£102½*	£102½*
Van Ryn Deeps	64 6	64 9	—	63 9	63 6	63 3B
Van Ryn Estates . . .	—	—	—	35 0+	35 0+	35 0+
Village Deeps	—	—	19 9	19 6+	19 6+	—
Village Main Reefs . .	13 6*	—	13 6*	—	14 0*	14 0*
Welgedachts	—	21 0+	—	—	—	—
West Rand Cons. . . .	6 0+	6 0+	—	6 0+	6 0+	6 0+
Western Rand Est. . .	—	—	1 6*	1 6*	—	—
Witwatersrands	37 6+	37 6+	34 0*	34 0*	34 0*	—
Wit Deeps	7 0*	8 0+	7 0	7 9*	7 11	7 9*
Wolhuters	8 6+	8 3+	8 0*	8 0*	8 0*	8 0*
Zaaiplaats Tins	6 2+	5 10*	5 10*	5 9*	6 3	6 9

*Buyers. +Sellers. AOdd lots. BEx London.

New Patents.

301. Frederick Lionel Rapson.—Improvements in or relating to lifting jacks and the like for use on motor road and other vehicles.
302. Frederick Lionel Rapson.—Improvements in or relating to lifting jacks and the like for use on motor road and other vehicles.
303. The Sopwith Aviation Co., Ltd., and Thomas Sopwith.—Improvements in brakes for aeroplanes.
304. John Donaldson.—Improvements in connection with elevators for handling ore and the like, more particularly in ships' holds.
305. John Hines.—Improvements in means for making or repairing roads and like surfaces.
305. John Hines.—Improvements in means for making or repairing roads and like surfaces.
307. Emile Roirant.—Improvements in the manufacture of hollow glass articles and in glass shaping and blowing machines therefor.
308. James Hamilton and John Hamilton.—Improvements in rollers for belts or ropes or such like.
309. Louis Giredo and Edward S w Dwand.—Improvements in apparatus for the generation of acetylene.

Union Coal Trade with the Argentine.

Mr. A. Zoutendyk, the Special Trade Commissioner appointed by the South African Union Government to inquire into trading opportunities with Argentine, arrived in Buenos Aires a few days ago by the Japanese steamer, Tacoma Maru (says the *River Plate Observer* of June 22). Interviewed by a Press representative, Mr. Zoutendyk stated that the Government of South Africa was fully alive to the possibilities of a great commercial exchange between the two countries. With this end in view, he had been sent to Argentine in order to obtain first-hand information. Accompanying him is the Argentine Consul-General in South Africa, Sr. Enrique Sturiza, who intends to spare no pains in pointing out the great trade avenues that exist. Mr. Zoutendyk stated that he had brought over a large number of samples of South African products, and hoped in a short time to open an office and industrial exhibition in the centre of the city. During his six months' stay in this country he intended to inquire minutely into all national industries, in order to form the basis of future trade exchange. Mr. Zoutendyk already is possessed of a smattering of Spanish, and hopes to acquire fluency ere he returns to South Africa. The principal thing the Union Government wished to develop was the export of coal to Argentina. Other articles the Union had for exportation were tinned lobster and wines of superior quality. The chief difficulty regarding the export of coal from South Africa was the lack of tonnage available. The preparations now being made were principally for after the war. In the coal trade (Mr. Zoutendyk added), South Africa fears no competition. In normal times coal can be purchased at the pit head for 4s. per ton. The country produced both good and medium classes. The Japanese line of steamships (agents, the American Trading Co.), now inaugurated between South Africa and Argentine, was bound to develop trade between the two countries. The geographical position of the two countries is another important factor. The distance from South Africa to the River Plate is only half of that between Buenos Aires and Europe. Nowadays "tramp" vessels perform the trip across in 12 or 13 days, but this could easily be lessened to eight days if, say, vessels of the Union-Castle type were employed on the run. Mr. Zoutendyk added that it was not outside the bounds of possibility that the Union Government and the Argentine Government would themselves inaugurate a direct line of steamships between Buenos Aires and the Cape.

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S.A. INSTITUTION OF ENGINEERS: PRESIDENT'S INAUGURAL ADDRESS.—III.

The following is a continuation of the inaugural address of the new President of the South African Institution of Engineers, Mr. G. M. Clark, delivered at the last meeting:—

The amount of work required to provide absolute necessities would not keep mankind busy for more than an hour or so a day, if properly parcelled out, so that there is plenty of time to indulge in luxury all round. I raise an objection to technique being imprisoned and confined within the narrow walls of one form of learning and I object to the most backward of the sciences, even if it is the one that man's nature cries out for most, attempting to force a long out-of-date form of technical instruction upon the rising generation.

I believe in free education not only in the primary and secondary stages, but in the higher stages also. Unfortunately though, whenever I use a popular catch-phrase such as this, I have to turn it upside down or inside out before I get the true meaning of it. So that by saying Free education, I do not mean free at all but Compulsory. Compulsory for all children in its primary and secondary stages and compulsory, too, in its higher stages for those that might benefit thereby. Compulsory, too, that all should pay for it, and not only pay but be made to feel that they are paying, for one of the difficulties just now with free education is the feeling amongst parents that it costs nothing and they value it at cost.

The free part of education that I would like to see is for those who now suffer compulsion in the wrong place—the teachers and the children. The teacher that is required is not the present miserably underpaid individual, but the men of light who receive adequate remuneration, not necessarily in cash but in the honour in which they are held, for they have in their keeping the most precious material of the race. Greater freedom, too, should be given to the children, for they cannot be either well taught or educated by machinery. Examination and education cannot go together, a child's mind cannot stand that process any more than a plant can thrive when frequently dug up to examine the roots. The way to see whether the roots are healthy is by inspection of the plant to see whether it is thriving. More inspections and less examinations will do much for the improvement of education. Here again, too, greater freedom and greater recognition of the value of their services are required to bring the right class of men into the work.

These changes cannot be effected suddenly. If an engineer is engaged on work that takes five years to carry out, he has something of considerable magnitude on his hands. Here, however, there is work that will take many generations: education is a gradual and continuous process, and the advance made by one generation must not be lost by the next.

In our profession I would like to see greater freedom amongst the apprentices in the shops, so that they may wander about and see what is going on. If an apprentice is taken into a shop there is a moral obligation to do the best for him. A boy is a restless, inquisitive creature, and better results can be obtained by utilising these properties intelligently than by mere suppression. I was recently at the Mental Hospital, Pretoria, not as an inmate but as a visitor, and the keynote of the work there is to give the greatest possible freedom to every case and to build skilfully on whatever sound foundation there may be. The old type of treatment by suppression leads nowhere. This is, without doubt, not only the right treatment for the mentally afflicted, but also for the mentally undeveloped.

With regard to this Institution, I regret that I have always the feeling that it does not represent the trade, profession or occupation of an engineer as fully as it ought to do. I confess that I have not yet got clearly crystallised in my own mind what the functions of an Institution ought to be and therefore, it is more than difficult to say whether it is fulfilling its objects or not. The founders of the parent society of engineers, The Institution of Civil Engineers in London, were "impressed with the difficulty of gaining the knowledge necessary for the diversified practice of engineering, for promoting regular intercourse between persons engaged in the profession to the end that such persons might mutually benefit by the interchange of individual observation and experience." These were the views of the founders about ninety years ago when owing to the difficulties of communication, of transport and of education, members had no facilities for acquiring knowledge or of making acquaintanceship with each other's work or with each other. Hence the reading of papers on subjects of technical interest, discussions thereon and meetings for social purposes were valid reasons, and the best of good reasons for the foundation of an Institution. Though these reasons are valid to-day for the maintenance of an Institution their importance has somewhat lost predominance and it is open to us to reconsider the position. As I have just said, my own mind is still open to conviction: I feel that if a change is to be made, it should be after very deliberate consideration. The rise of many Universities, such as those of Birmingham and Manchester, not to speak of the changes that have taken place in the two older English Universities has amply provided for the special instruction of the rising generation of engineers in every branch of its diversified practice. If this is to be the function of an Institution, as the old founders expressed it, the engineer is now again face to face, not with the difficulty of how a thing is to be done, but with making a selection from many ways. The Institution is a sort of final continuation class of the University, and I for one would like to see a close relationship between such

societies and the Universities. It seems to me essential that the higher type of education should be closely in touch with the world of work so as to ensure that the University, like Peter Pan, may never grow old.

The education of an engineer, or of any other man for that matter, should continue throughout his whole life, and it is better that he should obtain it in a good rather than in an indifferent manner. The stock outline for writing a biography is: So-and-So, born somewhere; on the completion of his education in his nth year, n being less than 17, was articled to—and so on. You will find it repeated *ad infinitum*. Though my age is 34 years, I do not find that my education shows any sign of reaching a limit, and even should I live to the age of two or 30 years I hope that my biographer will be kind enough to say that I was only partially educated. A day on which one has not been educated a little more is a day wasted. The dissemination of technical knowledge is in a very different condition to what it was ninety years ago. Instead of there being a drought there is a flood so deep that no one can brook it. We have to take our literature boiled down into Abstracts and Extracts, and an attempt to absorb these into the system is more likely to lead to mental indigestion than to mental exhilaration.

With regard to the remaining view of the founders as to the value of promoting regular intercourse between the persons engaged in the profession, though times have changed in other respects, this still remains true, that the minds of these engaged must be given the opportunity of operating upon each other, and this can best be done by means of bringing people together. The means to be adopted for bringing together must depend a good deal on the local circumstances of employment. Where, as in the old country, there is a sufficient population to support a large body of engineers in independent practice like the members of others professions practice, and as the founders of the Institution had in mind, the conditions are very different from what they are here to-day, where there is practically no independent practice, but all engineers are employees of varying grades. There is then sometimes more intercourse during the week than one cares to continue on a Saturday night. Besides trying to analyse the reasons for founding an Institution, I might also try to analyse the reasons that men have for joining one. It was quite bluntly stated by one of the counsel in the case of the Commissioners of Inland Revenue v. The Institute Civil Engineers (1890) that "the main object of joining is to make pecuniary gain." There is a good substratum of truth in this, even if it is modified into the form of advice given by the Northern farmer: "Don't 'ee marry for money, but go where money is." However, the Lords of Appeal overruled this as being merely individual, and it was held that the Institution existed for the enlargement of the boundaries of science. In delivering judgment, it was stated: "If anyone were asked to say what would be a more efficient method of promoting Engineering Science than that which the Institution has adopted, he would have difficulty in making a satisfactory reply." I do not think that very many members who join this Institution are consumed by any ardent fire to enlarge the boundaries of science or feel themselves particularly well qualified to do so in their individual capacity. I think that they join principally for Shylock's reason: "I have no reason." Man is naturally a gregarious animal, and likes to get inside the kraal with the rest. Once there one has no longer to deal with the psychology of the individual but of the crowd, and in its corporate capacity an Institution may carry out many things for which the members in their individual capacity have not even the desire.

Before leaving this point, one might also consider this matter from the point of view of the definition of an engineer. One might then arrive at the limitations of who should and who should not be

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admitted should the present rules go into the melting pot. The definition is well-known in the terms stated by the founders of the Institution of Civil Engineers, but this in the local circumstances here would seem to lead to too exclusive a view; I would rather see the basis widened than curtailed.

I do not propose to finish this part of my address, for I am unable to do so. I am of opinion that the position of these Institutions should be carefully considered, and I leave it to the members as an unsolved problem to be thought over. It is not a new question as a predecessor of mine in this chair offered a prize for suggestions for the improvement of the Institution without eliciting much response.

An engineer is not a pioneer in the regions of pure science, though sometimes his necessities make demands upon those engaged in such studies to explore fresh fields for him. The man of science is the pioneer and the engineer is rather the settler. Each has his own functions and the one cannot exist without the other. The studies of the mathematician may not seem to have very much bearing upon the engineer's work; but, nevertheless, we have seen so many times that an apparently remote investigation in science or in mathematics sooner or later becomes part of the every day equipment of the engineer that we should be chary indeed of curtailing original work in any field. Fifty years ago the term Entropy was introduced into Thermodynamics as a convenient expression used in the solution of certain partial differential equations. The physical conception was so difficult that even Clerk Maxwell confused, in his Theory of Heat, Entropy with Available Energy. To-day one has only to look at a Hellier diagram and it would be difficult indeed to confuse the base line with part of an ordinate. To-day, thanks to certain gifted minds, the term has become familiar enough in ordinary steam practice in an engine room. Twenty years ago the knowledge of electrons was a conception of a great professor's brain. To-day this same professor lectures upon their industrial application. The material progress of mankind may be traced through the ages in many ways and one of these has been man's power of concentrating the maximum of power with the minimum of mass. From the time that man found that there was an advantage in being able to hurl a stick or a stone and thus make use of its kinetic energy, through the ages when the kinetic energy was increased by the use of a bow-spring to give greater velocity to his more mass-less arrows, to the present time when he propels a projectile with the energy of chemical explosives, the ratio of power to mass has increased. In the development of means of locomotion, too, from the little energy developed in a horse-drawn cart, to go no further back into history, to the internal combustion engine of to-day's motor-car or aeroplane, mass has been successively reduced and power increased. In shipwork, too, from the boat propelled by oars and human labour to the modern steam turbine equipment this concentration is continually seen. In the ions of electricity we have an indication that this world line of man's development has reached an end and that the concentration process can go no further. Within the last year or two a new theory of gravitation has been put forward. It has only one practical application that I am aware of and that affects nothing on this earth. It only affects the planet Mercury, and is able to explain a disturbance in the movement of that planet unexplained by the older theory of gravitation, which states the law of the inverse square for the attraction between two bodies. It is a theory that explains only one more fact than the older theory and it would perhaps be difficult to find anything more extra-mundane than this. How, then, can such a theory be of service to the engineer? It may serve to make us think, for having accepted the premises, it follows that the description of the world and of the Universe that we have been accustomed to give is not in any way like the real Universe. It means that our minds are so undeveloped at present that we can only give the roughest account of the things that are happening around us as we translate them by our senses. It is the sort of description that a child's mind would give of any new thing presented to its notice. It means that our attempt to describe things in terms of three dimensions in space—length, breadth and thickness—and of one dimension in time, is not the right description at all, but that the real universe is a four-dimensioned structure in which the descriptions that we now use do not exist, for they are not realities. In this real universe there is no more space and there is no more time. Before finality is reached man's mind has to develop until it can grasp and understand these things. I do not bring this forward with any other excuse than that it is good for man to live among mountains, either physical or mental, sometime or other. The men of the hills are not as the men of the plains. To have seen the Himalayas

is a great thing, to have climbed even amongst their lower spurs is greater still; but there yet remains Kinchinjunga, undimable, greatest of them all.

I have not addressed you at any great length this evening, for the preparation of a presidential address is generally a formidable undertaking, requiring more time and labour than I, by the nature of the case, have been able to give it. Whilst some men tell of the ships they have built and others of the ships by which they have travelled, I have tried to speak of one or two points by which our ships may be more safely navigated, and I have spoken of education, for that I feel is one of the principal beacons. I might perhaps have touched more fully on engineering work in its more commonly accepted sense, of the wonders of the development of works and machinery, of aeroplanes and of submarines that have reduced to nothingness the wonder stories of my boyhood. I might have spoken of the development of other great contrivances of power that have appeared during the same period, of the wonderful developments of the uses of electricity not only on the great scale for lighting, power, smelting, and so on, or the assistance that it may be in agriculture through the manufacture of fertilisers; or of the uses on a less scale such as wireless telegraphy and telephony, and of all the means whereby space is contracted and time lengthened. By such means as these Man seems to have gained the whole world, and the price—I say, the price of an engineer's loadstone is whether it pays to do these things, the price is being paid on the battlefields of the world and on the hearths and in the homes of these left behind for the price of these things is that Man has almost lost his soul. I say almost, for we hold our faith that it is not entirely so. Millions of men have made the great sacrifice to redeem the soul of the world and millions more, for all we know, may yet be required to do so. There is not one of us who has not lost personal friends and relations, and in our capacity of Engineers the number of our brothers in the profession that we have lost must be nearly endless. In this great sacrifice there is no classification, for, from the humblest private to the greatest officer of State, all are included in the simple title of the honoured dead. Is this sacrifice to be made in vain? The engineer's knowledge has supplied many of the implements by which the war has been waged. At the end let it be the Engineer's knowledge that helps to take the sword away. More true, perhaps, than that this is an Engineer's war is the statement that it is the war of the Young. The magnificent feats of the youths still in their teens or only just beyond them have filled us all with wonder. Whilst one must feel regret in the passing of men much of whose life's work has been done, one cannot feel other than an ennobling pride when the passing is of those who have only just stood upon the threshold of manhood. It has not been given to us all to fill these the most honoured posts amongst the race. But we who are left behind may show by our lives that we have real faith and belief in the greatness of the honour. Besides honouring those of our own profession who have done so much, I would ask you, too, to honour the young of the race as the best fitting memorial of their memory. I have tried in these few words to-night to show that the two can fittingly be linked together. I know that the sketch is an imperfect one, for a half-hour sketch is not a finished picture. Much of the grouping may be wrong and many of the lines may have to be erased, but if it will tend to make you think that the ideals for which engineers ought to live are above the greatness of Rome, or the glories of Greece, we may yet see restored in English natures the greater glories that should possess the soul of our country that is our own, whether on this side or the other of the sea.

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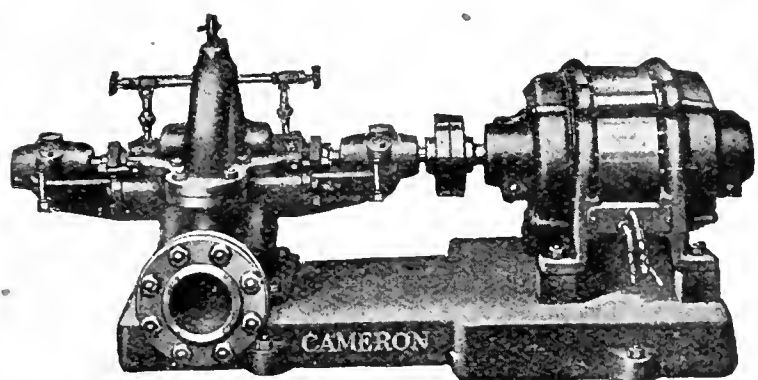
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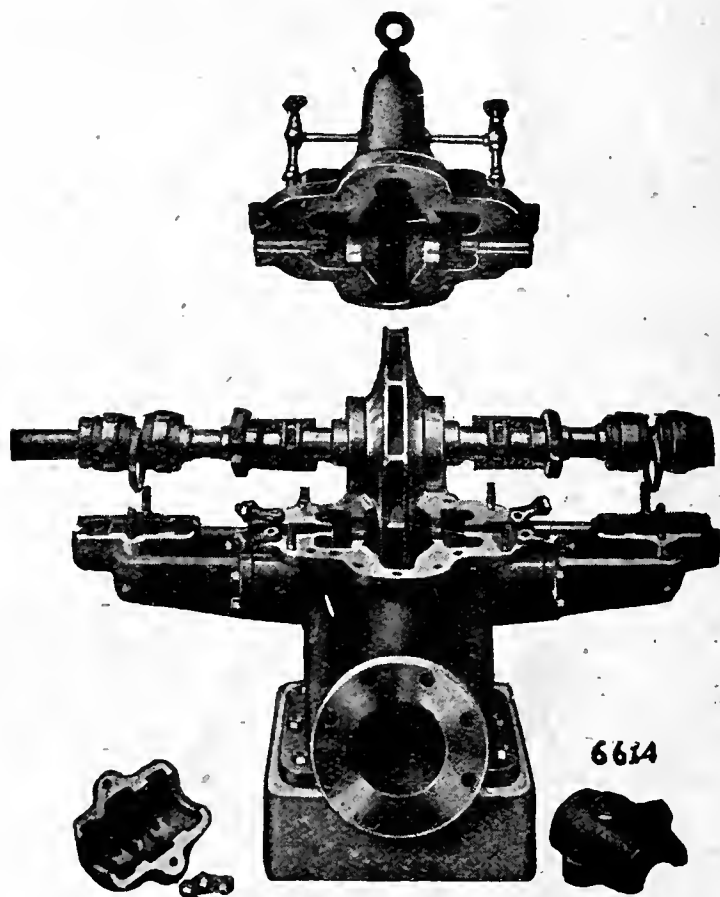
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THE WEEK IN THE MINING MATERIAL AND ENGINEERING TRADES.

Special Meeting of the Commercial Exchange re the Pooling Scheme—A Corner in Linseed Oil—The Trend of Business—Building Contracts on the Increase—Important Judgments.

THE feature of the week was the receipt of a circular marked "Private and Confidential" by the members of the Commercial Exchange to attend a special meeting on Thursday. The meeting was in connection with the results of the scheme of pooling of the mine stores that has now become an accomplished fact. It was pointed out and accepted by the chairman's address at the recent annual meeting of the Commercial Exchange that a dull time must ensue whilst the mines were using up some of their surplus stocks. At Thursday's meeting the chief speaker explained several knotty points that had been raised from time to time, and the meeting appeared satisfied with the various explanations. He also particularly emphasised the importance of the merchants and others providing substitutes as much as possible, to prevent importations, and so far he thought they had done pretty well in this direction. A member was heard to remark that the meeting was a success, as it would assuredly create a better feeling as between the central buying office and the merchants. He also concluded by emphasising the point that such meetings should be held often, when many seeming embarrassments would be swept away like chaff.

A LITTLE CORNER IN LINSEED OIL.

It is practically impossible to obtain a quotation for linseed oil, which is very scarce indeed through the ordinary consumption not being replaced, as the embargo on its export by the British Government has not been relaxed. There is direct evidence that speculators have been at work and secured fair quantities which are being held back for profiteering exploitation. For example, a big line was offered at 45s. per 5 gall. drum, but the buyer only bid 42s. 6d.; in a day or so he said that he would give the 45s., but it was refused. A similar experience was repeated

during the next few days when the selling price went to 49s. 6d., and there the matter remains, but in the meantime the speculators are on top. White lead is not in such an acute position, but very nearly so. Varnish is scarce, and holders refuse to part with anything like decent lots. However, from the present the big firms are keeping their regular customers supplied with their day to day requirements.

THE TREND OF BUSINESS.

We are going through a waiting period, as there is no life in business and seemingly less enterprise, as merchants are at a loss to know what to do. It is generally recognised that we are in for another year's war, hence the uncertainty of forecasting the trade barometer. For example, the timber merchants are somewhat perturbed in reference to

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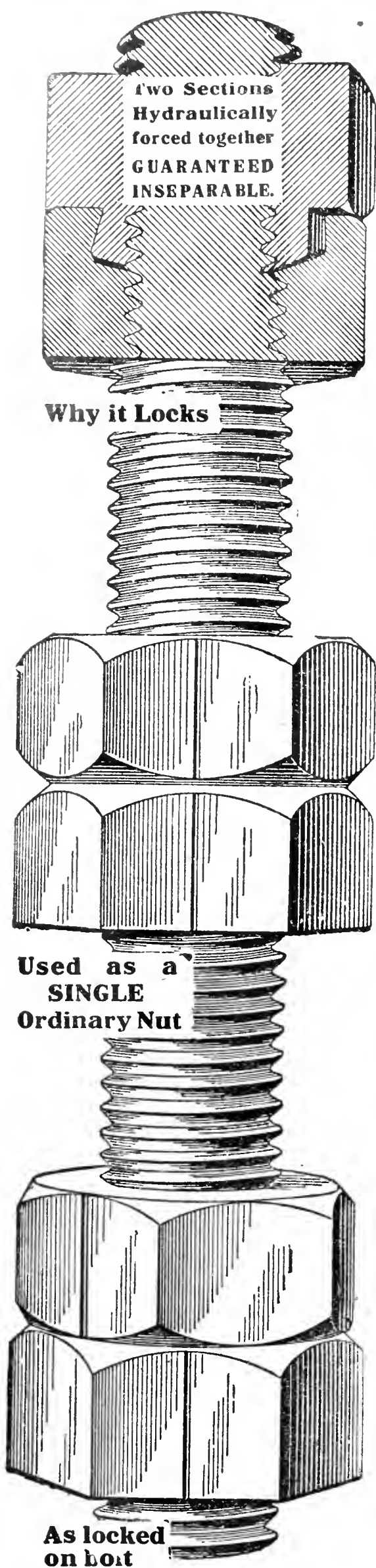
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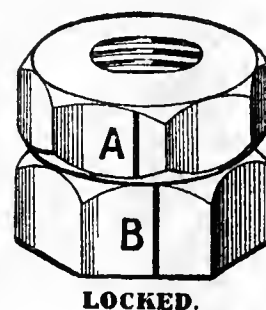
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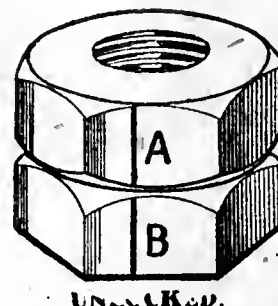


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the Swedish position, as hitherto our supplies of timber have been received from that quarter direct with fair regularity. As regards the American position, the shipping people have little or no news this week, although high hopes are entertained that the position will become less critical from week to week. Take, for example, the supply of steel plates and galvanised iron. We know that several neutral ships are on the way, but it is problematical what they actually contain, but from a business point of view it is correct to assume that there will be decent consignments of steel and galvanised iron which will relieve our present acute shortage. Take the case of galvanised flat iron, for which all the plumbers' shops in town are practically hung up, as now only single sheets can be picked up here and there, for some special job which cannot be delayed. Much of the uncertainty in connection with the American shipments is explained by the fact that such a quantity of mail matter went down in the ill-fated City of Athens, therefore duplicates are awaited. These various unfortunate happenings must naturally have a disturbing effect, but up to the present nothing very much has occurred considering the jarring war conditions.

BUILDING MATERIALS.

Deals have advanced a halfpenny per foot in the longer lengths, making the quotation from 1s. 3d. to 1s. 1½d. Oregon log pine in steadier at a 3d. per cube advance. Clear pine and poplar woods are each up 1d. per foot, as supplies are being used up for shop work. Furniture woods are also getting scarcer and dearer. Flooring and ceiling brads are up 2s. 6d. per 100 lbs. The brick position has not been relieved of its acute shortage, as the demand continues good, and the check in the manufacture caused by the recent wintry weather has not yet been caught up. Roofing tiles are in a similar position to that of bricks, but no doubt the fine weather and the extra spurt being made at the kilns will soon relieve the tantalising situation of so many houses remaining uncovered, awaiting the necessary tiles. A building contractor states that the new contracts coming forward are gradually on the increase, as people have reconciled themselves to the fact that building materials will not get cheaper for a long while to come.

IMPORTANT JUDGMENTS.

For supplying boots to natives, the E.R.P.M. Company has been mulcted in a nominal penalty in this test case. It came out in evidence that the Attorney-General refused

to prosecute, but the traders took the matter up and laid a charge of the company trading on a plot held under mining title, or in the alternative contravening Section 98, Act 35 of 1908, by paying to certain natives a portion of their wages other than in current coin, viz. supplying them even with a pair of boots and deducting 11s. 10d. from their wages. The magistrate said that an employer is only entitled to make such deductions from the wages of a native as were authorised by the Act, or the Regulations, or by order of a competent Court. In the absence of such authority, the deductions made, and sanctioned by the Inspector, presumably acting for the Director of Native Labour, could not be allowed. The prohibition of payment of wages on mines in other than current coin first became law in 1896, and the prohibition was looked upon as the Magna Charta of the trading community, as it made it impossible to establish here the Kimberley compound system. The prohibition, however, only extends to employees engaged in mining. It is understood that an appeal is contemplated. The other judgment is that the legal standard of measure is the Imperial, as that is the only one sanctioned under the Transvaal Law of 1874. This settles a long outstanding controversy, which has often been the cause of much unpleasantness between merchant and customer. The importation of canned things from America is great, as, for example, thousands of motor spirit tins of 4.5-6 Imperial gallons each, are emptied in Johannesburg daily. Now in refilling these with other spirits or oils, which has become very prevalent during the war conditions, the difficulty of rebooking will occur. However, the greater difficulty will be in the smaller sized tins, such as a quarter gallon O.M., which represents 208 Imperial. The position will no doubt soon right itself now some definite legal basis is acknowledged.

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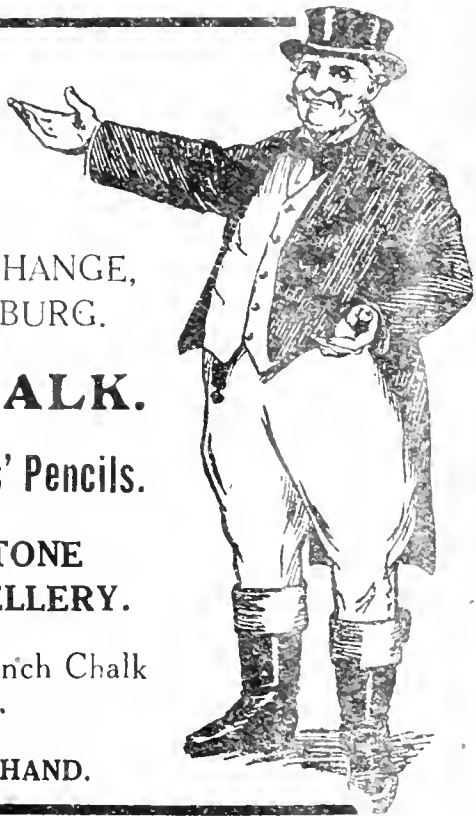
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